

CLAIMS

1. Starch-based glue paste composition consisting of a mixture of a carrier paste and a main paste, wherein:

5 - the carrier paste is a starch-based paste composed of a starch selected from the group consisting of corn starch, wheat starch, rye starch, oat starch, barley starch, potato starch, tapioca starch and pea starch, each being native starch or chemically modified starch, or any mixture thereof, water and an alkali base, wherein the starch is present in a concentration ranging from 5 to 16
10 wt% based on the total amount of water in the carrier paste, and the alkali base is present in an amount ranging from 10 to 25 wt % , calculated as sodium hydroxide and based on the amount (dry substance) of the starch in the carrier paste,

15 - the main paste is a starch-based paste composed of a mixture of (i) native rice starch which contains from 12 to 20 wt% amylose, about 1 wt% other compounds, and a complementary 87 wt% to 79 wt% amylopectin, or an acetylated version of the native rice starch containing from 0.25 to 2.5 wt% acetyl groups on dry starch content, and (ii) a starch selected from the group consisting of corn starch, wheat starch, rye starch, oat starch, barley starch,
20 potato starch, tapioca starch and pea starch, each being native starch or chemically modified starch, or any mixture thereof, water, and sodium borate, wherein the native rice starch or acetylated version thereof is present in an amount ranging from 10 to 30 wt % on the total starch content (dry substance) of the main paste, the total amount of starches in the main paste ranges from 25
25 to 50 wt%, based on the total amount of the main paste, and sodium borate (calculated as anhydrous borax) is present in an amount ranging from 0.3 to 3 wt % based on the amount of the starch (dry substance) in the main paste, and
- the weight ratio main paste : carrier paste ranges from 1 : 1 to 3: 1.

2. Glue paste composition according to claim 1, wherein the starch in the
30 carrier paste and in the main paste, apart from the rice starch, is native or cross-linked wheat starch.

3. Glue paste composition according to claim 1, wherein the starch in the carrier paste and in the main paste, apart from the rice starch, is native or cross-linked corn starch.

35 4. Glue paste composition according to any one of claims 1 to 3, wherein the rice starch is native rice starch or an acetylated version thereof, containing

from 16 to 18 wt% amylose, about 1 wt% other compounds and a complementary 83 to 81 wt% amylopectin.

5 5. Glue paste composition according to any one of claims 1 to 4, wherein the rice starch or acetylated rice starch is present in the main paste in an amount of 15 to 25 wt%.

6. Glue paste composition according to any one of claims 1 to 5, wherein the alkali base in the carrier paste is sodium hydroxide and the sodium borate in the main paste is borax.

10 7. Glue paste composition according to any one of claims 1 to 6, wherein the weight ratio main paste : carrier paste ranges from 1.4 : 1 to 2 : 1 .

8. Method for the manufacture of a glue paste composition defined in any one of claims 1 to 7, comprising the steps:

15 - preparing a carrier starch-based paste by mixing under stirring into water at 30 °C to 50 °C, a starch selected from the group consisting of corn starch, wheat starch, rye starch, oat starch, barley starch, potato starch, tapioca starch and pea starch, each being native starch or chemically modified starch, or any mixture thereof, water and an alkali base, in a concentration ranging from 5 to 16 wt% based on the total amount of water in the carrier paste, and the alkali base in an amount ranging from 10 to 25 wt % , calculated as sodium hydroxide and based on the amount (dry substance) of the starch in the carrier paste, followed by stirring with shearing of the mixture at 30 °C to 50 °C until the starch is completely gellified and a stable viscosity of the mixture is obtained,

20 - preparing a main starch-based paste by mixing under stirring , into water at or below room temperature, native rice starch which contains from 12 to 20 wt% amylose, about 1 wt% other compounds, and a complementary 87 wt% to 79 wt% amylopectin, or an acetylated version of the native rice starch containing from 0.25 to 2.5 wt% acetyl groups on dry starch content, and a starch selected from the group consisting of corn starch, wheat starch, rye starch, oat starch, barley starch, potato starch, tapioca starch and pea starch, each being native starch or chemically modified starch, or any mixture thereof, water and sodium borate, the rice starch or acetylated rice starch being present in 10 to 30 wt% on total starch content (dry substance) of the main paste, and the total amount of starch in the main paste being from 25 to 50 wt% based on the total amount of the main paste, and sodium borate (calculated as anhydrous borax) being in an amount ranging from 0.3 to 3 wt % based on the amount of the starch (dry substance) in the main paste, followed by stirring for 5 to 10 minutes to yield a homogeneous paste,

- and mixing the carrier paste and the main paste in a weight ratio main paste : carrier paste ranging from 1 : 1 to 3 : 1.

9. Method according to claim 8 wherein the carrier paste and the main paste are prepared separately and subsequently mixed.

5 10. Method according to claim 8 wherein the glue paste composition is prepared by a one pot process wherein first the carrier paste is prepared as defined in claim 8, and subsequently water, the native rice starch or the acetylated version thereof, and a starch selected from the group consisting of
10 corn starch, wheat starch, rye starch, oat starch, barley starch, potato starch, tapioca starch and pea starch, each being native starch or chemically modified starch, or any mixture thereof, and sodium borate, are added to said carrier paste under stirring at or below room temperature in an amount corresponding to the one for the preparation of the main paste as defined in claim 8 and in a weight ratio main paste : carrier paste ranging from 1 : 1 to 3 : 1, thereby yielding the
15 homogeneous starch-based glue paste composition defined in any one of claims 1 to 7.

11. Premix especially composed for use in the method of manufacture of a glue paste composition defined in any one of claims 8 to 10, consisting of a dry mix of (i) native rice starch which contains from 12 to 20 wt% amylose, about 1
20 wt% other compounds, and a complementary 87 wt% to 79 wt% amylopectin, or an acetylated version of the native rice starch containing from 0.25 to 2.5 wt% acetyl groups on dry starch content, and (ii) a starch selected from the group consisting of corn starch, wheat starch, rye starch, oat starch, barley starch, potato starch, tapioca starch and pea starch, each being native starch or
25 chemically modified starch, or any mixture thereof, wherein the rice starch or acetylated version thereof is present in an amount ranging from 10 to 30 wt% on total starch content.

12. Method for the manufacture of laminated corrugated board comprising of the steps of (i) applying a film of starch-based glue paste
30 composition defined in any one of claims 1 to 7 to the tops of the corrugates at one or both sides of a corrugated board core, (ii) bringing a liner into contact with the tops of the corrugated board core bearing said starch-based glue paste with application of pressure and heat, initiating gellification and an initial joining together of the surfaces in contact with the glue composition, and (iii)
35 completing the glueing of the corrugated board core to the liner(s) by the application of heat.

13. Method according to claim 12 wherein a film of starch-based glue paste composition defined in any one of claims 1 to 7 is applied to the tops of the corrugates of the corrugated board core in an amount ranging from 4 to 7 g/ m².

5 14. Laminated corrugated board wherein a liner has been joined to the tops of the corrugates of the corrugated board by means of a starch-based glue paste composition defined in any one of claims 1 to 7.